

WHAT IS CLAIMED IS:

1. A surge protection device for protecting equipment from impulse surges, said device comprising a high frequency line, and a first decoupling filter formed as a $\lambda/4$ section and a gas arrestor, sequentially connected to the high frequency line, said gas arrestor being connected between the first decoupling filter and the ground, wherein said device further comprises:

a low frequency line and a second decoupling filter connected in series between an output terminal, through which a signal flows into a circuit, and a contact point between the first decoupling filter and the gas arrestor, said low frequency line including a low voltage limiter and a low pass filter; and a T-shaped high pass filter connected to the high frequency line.

2. The surge protection device according to claim 1, wherein the low voltage limiter includes a two-directional diode whose breakdown voltage is equal to a supply voltage to be provided to a circuit connected to the output terminal.

3. The surge protection device according to claim 1, wherein the low pass filter in the low frequency line is able to withstand voltage of surges occurring due to breakdown of the gas arrestor.

4. The surge protection device according to claim 1, wherein the high frequency line comprises a band pass filter.

5. The surge protection device according to claim 4, wherein the band pass

filter comprises:

first and second strips, first and second capacitors and a first inductor
disposed between the input and out

put terminals.

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6. The surge protection device according to claim 5, wherein each of the first
and second strips comprises a 34 mm thick foil strip.

7. The surge protection device according to claim 5, wherein one end of the
10 first inductor is connected to the first and second strips and an opposing end of the
conductor is connected to ground.

8. The surge protection device according to claim 1, wherein the impulse
surge is between 100 and 200 volts.

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9. The surge protection device according to claim 1, wherein the low
frequency line further comprises:
third and fourth capacitors and second and third inductors.

10. The surge protection device according to claim 1, wherein an inductance
20 of the second inductor
selectively limits an input current.

11. The surge protection device according to claim 2, wherein the circuit
25 connected to the output terminal
comprises an antenna.

12 A surge protection device having a high frequency line, a gas arrestor
and a first decoupling filter

disposed between an input terminal and an output terminal, said surge protection
5 device being adapted to protect a communication device from a high voltage, high
frequency signal and from a high voltage low frequency signal, said surge protection
device, comprising:

a low frequency line, adapted to divert a high voltage, high frequency signal
from said high frequency line when said high voltage, high frequency signal is
10 applied to said input terminal; and

a second decoupling filter, adapted to filter said high voltage, low frequency
signal from said low frequency line.

13. The surge protection device according to claim 12, wherein said low
15 frequency line comprises a low
pass filter.

14. The surge protection device according to claim 12, wherein said low
frequency line comprises a
20 first capacitor, a second capacitor, a first inductor and a second inductor, and a
bidirectional diode.

15. The surge protection device according to claim 12, wherein said
bidirectional diode selectively
25 providing an input signal to ground or to said second decoupling filter.

16. The surge protection device according to claim 15, wherein said input signal is between 100 and 20
0 volts.

5 17. The surge protection device according to claim 16, wherein said input signal is an unwanted impulse signal.

18. A method of providing surge protection for a communication system,
said method comprising:
10 detecting a presence of an impulse signal;
providing said impulse signal to a low frequency line if said impulse signal comprises a high voltage, low
frequency signal; and
providing said impulse signal to a high frequency line if said impulse signal
15 comprises a high voltage, high
frequency signal.

19. The method of claim 18, wherein the high frequency line includes a high
pass filter and the low
20 frequency line includes a low pass filter.

20. The method of claim 18, wherein the low pass filter includes a bi-directional diode having a breakdown voltage equal to a supply voltage of a circuit to be protected.